Chapter Four | Communities and Ecosystems

Photo: Bruce Wendt

Fourth of July Parade, Mandan, North Dakota. EPA resources, technical support and oversight activities help communities with a wide range of issues, including drinking water, watersheds, hazardous waste cleanup, indoor air quality and more. In Mandan, EPA is a partner in many projects, including an ongoing effort with the North Dakota Department of Health to continue to treat, control and monitor groundwater pollution at a local oil refinery. Since identifying the pollution in the early 1990s, the state and EPA have done extensive work to clean up polluted soils and contaminated groundwater. Today, the refinery is operating safely and control measures are in place to make sure that groundwater pollution does not impact nearby drinking water wells or the Missouri River.

Introduction

Environmental protection begins and ends with healthy communities — the places where we live and work, where our kids go to school, where we swim and fish. The health of human communities is also linked with the health of the communities of plants and animals — the ecosystems — that surround us. EPA recognizes that one of the most effective ways to achieve our mission is to work to strengthen communities and help make them sustainable.

Restoring polluted land and waters

Over the past decade, EPA has been finding ways to strengthen communities by cleaning up pollution and helping them reuse and revitalize once-polluted land and water as productive assets. This approach is a long way from the "fence and keep out" mentality that characterized earlier approaches to pollution. By providing money and technical expertise for assessments and cleanups, and alleviating liability concerns that have been an obstacle to redevelopment in the past, Region 8 has been a big part of some reuse successes.

EPA's Brownfields program strengthens communities by providing resources to assess, safely clean up, and reuse polluted or potentially polluted properties. In 2004, Region 8 provided nearly $2.4 million to achieve cleanup goals and jump start redevelopment efforts at sites in more than a dozen communities in our states and tribes. This is in addition to nearly $8 million EPA provided states and tribes to build capacity and clean up sites through their own Brownfields programs.

Lakewood, Colorado: Replacing an eyesore with a new downtown

The Belmar project is built on what was formerly the Villa Italia Mall — once one of the largest in the Western United States. Like many other regional malls around the country, Villa Italia declined in

the 1990s and was 90 percent vacant, a tax revenue loss for the city, and a highly visible eyesore by the end of the decade. In 1999, the City set up a Redevelopment Authority and, with extensive community involvement, decided that Lakewood needed a place that the community could call "downtown."

Before redevelopment could take place, the City had to address environmental problems at the mall site, especially from former dry cleaning and automotive operations. Issues included soil and groundwater contamination from volatile organic compounds (primarily perchloroethylene, trichloroethylene and vinyl chlorides) and petroleum hydrocarbons. With the help of EPA grants and loans totaling nearly $2 million, the City, developer, and contractors assessed the site and cleaned up soils and groundwater under a Voluntary Cleanup Plan approved by the Colorado Department of Public Health and Environment.

Today, the Belmar Urban Center is thriving. The 103-acre mixed-use "urban town center" includes eight city blocks with 127 residential units, 200,000 square feet of office space, 650,000 square feet of retail space, a new 16-screen cinema, a two-acre park with a public plaza and numerous art galleries and studios. Bolstered by this success, the City is planning a second phase of development that will include 14 additional city blocks, 1,173 residential units, 600,000 square feet of office space, 450,000 additional square feet of retail space, and a 250 room full-service hotel.

Sioux Falls, South Dakota: Restoring the connection between a city and its namesake

Since 1997, the City of Sioux Falls has received help from EPA to address pollution and redevelop a former industrial area that lies adjacent to the impressive falls that are the city's namesake. This ambitious project, "Phillips to the Falls," is transforming a once depressed area into an accessible commercial district, green space and parks.

In total, EPA has awarded $400,000 for assessment, planning and outreach support and $200,000 for the cleanup of the 26-acre riverfront site formerly used for scrap-metal salvaging, lead-acid-battery storage and railroad operations. These grants built on other EPA support for technical assistance to identify pollution hot spots contaminated with heavy metals, chlorinated organic chemicals and fuel from old storage tanks.

Throughout 2004, the City used EPA grants to assess, remove, treat and dispose of contaminated materials, and to add clean fill and cap portions of the site. This cleanup restored an important connection between downtown Sioux Falls and the river by expanding Falls Park into northern downtown and extending Phillips Avenue across the Brownfield site. In October, EPA helped celebrate the completion of this work with a ribbon-cutting ceremony that declared the former industrial site ready for reuse. "When I was elected mayor, during one of the first meetings we talked about the priority of getting Phillips to the Falls finished," said Sioux Falls Mayor Dave Munson at the ceremony. "This has been a collective effort by a lot of people…and today is the beginning of a transformation of this part of the downtown area of Sioux Falls."

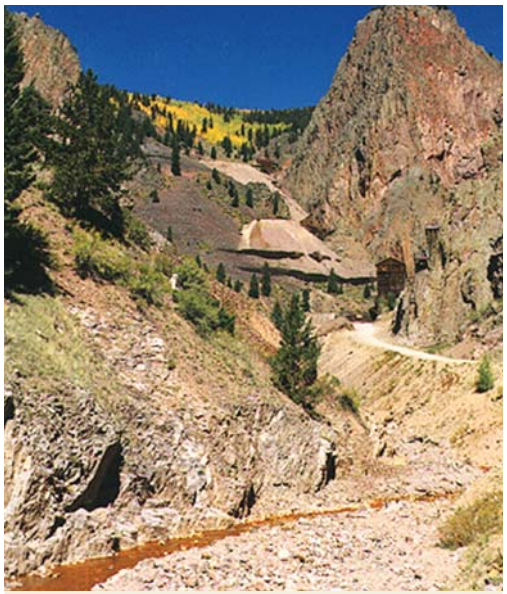
"Phillips to the Falls" is already bringing a renewed vibrancy to downtown. Falls Center, a historic warehouse redevelopment that brought a

Belmar redevelopment project, Lakewood, Colorado. EPA helped state and local partners clean up pollution on the site of an abandoned shopping mall, paving the way for redevelopment of residences and retail and service businesses. Nearly 14,000 jobs will be generated by the project.

Photo: Rich Stedman

Sioux Falls with Falls Park in the foreground (above). The final phase of cleanup activities (below), will reconnect the city's business district and riverfront.

Hazardous materials training at the Turtle Mountain reservation. An EPA Brownfields Job Training Grant has enabled 53 Chippewa Tribe members to develop environmental skills and address issues on the Reservation.



Willow Creek Mining District near Creede, Colorado. Hard rock mining produces large quantities of waste rock, tailings and other by-products. With exposure to air and water, the sulfide-rich waste oxidizes, releasing acid and metals into the environment. EPA is working with partners to find innovative ways to clean up these areas and revive mountain towns and waters.

microbrewery, comedy club and architectural and legal offices a few years in advance of the cleanup, is now being joined by other new businesses. Investors are showing interest in major new private developments that will bring even more economic opportunities.

Creede, Colorado: Breathing new life into the Willow Creek Watershed

Reuse isn't just for urban areas. Region 8 has emerged as a leader in using cleanup and reuse approaches to help communities in rural areas, particularly those affected by the legacy of past mining activities. In Region 8, pollution from abandoned mine sites is a common problem, with acid runoff and heavy metals from literally thousands of sites affecting soils and lakes, rivers, streams, wetlands and groundwater across the Rocky Mountains.

In Colorado, EPA's work in the Willow Creek Watershed is helping people in Creede (population 2,000) revive their community and local economy by cleaning up mine waste, improving water quality and establishing a world-class trout fishery. Willow Creek, a tributary of the Rio Grande River, has 11 major former mining sites and is polluted with zinc, lead, cadmium and other heavy metals.

EPA, the State of Colorado, the City of Creede, and a group of local interests called the Willow Creek Reclamation Committee are working on a community-based effort to clean up old mine waste sites and improve water quality and habitat. Much of this work has included consolidating and capping tailings piles to reduce the leaching of heavy metals into waters. EPA has helped conduct extensive studies in the area, including several characterization reports on groundwater and surface water sampling, mine dump sampling, bio-sampling, underground investigations and an ecological assessment of the watershed. EPA is also helping clean up a former airport property in town with contaminated soils. Plans are now underway to redevelop the property into the Mineral County Fairgrounds.

The next big step in cleaning up Willow Creek is finding a way to address the Nelson Mine Waste Tunnel. EPA and partners have completed a characterization of the tunnel — which discharges approximately 70 to 80 percent of the zinc load delivered to the Rio Grande via Willow Creek. Reducing this pollution load is critical to restoring Willow Creek's aquatic and riparian habitat. EPA is helping the City assess alternatives, including the potential use of the Creek to generate thermal or hydropower to offset cleanup costs, as well as underground source control methods that may improve water quality coming out of the tunnel.

Protecting sensitive populations

Migrant farmworkers

There are approximately 45,000 migrant farm workers in Colorado — one of most vulnerable populations in Region 8. For nearly all of these workers, access to health care is poor and working conditions can be hazardous. In addition, workers and their families often lack safe drinking water, bathing or laundry facilities and adequate sanitation.

Region 8 focuses on key environmental issues in the migrant worker community, especially drinking water and pesticides. Our Environmental Justice program, which protects vulnerable communities from bearing unfair environmental risks, has led many of these efforts.

Ensuring safe drinking water in migrant communities can be a challenge. Since the Safe Drinking Water Act does not apply to many of the rural wells that migrant workers use, EPA uses voluntary approaches to identify and address problems. Over the past few summers, EPA has tested the water at four labor camps in Colorado, and discovered that some of the well water exceeded the health-based standard for nitrate. The groups most at risk from high nitrate levels are infants and babies carried by expectant mothers. High nitrate levels interfere with the ability of infants to metabolize oxygen and can lead to the fatal "blue baby" syndrome. EPA is raising awareness of this problem and working on potential solutions, such as installing point-of-service filtration systems on wells, with the Colorado Department of Public Health and Environment, the U.S. Department of Labor, Colorado growers and others.

Through outreach to growers and workers, Region 8 has also focused on increasing compliance with the Worker Protection Standard established under the Federal Insecticide, Fungicide and Rodenticide Act. This standard sets requirements for the safe handling of pesticides and the education of growers, pesticide applicators and farm workers. They include measures that require growers to notify workers about the specific pesticides being used each day, mandate the use of special equipment such as gloves and other protective gear, and require mandatory time-out-of-field periods following applications of certain types of pesticides.

Although the Worker Protection Standard has been in place for 10 years, EPA continues to see a high rate of noncompliance. Region 8 inspections in Colorado during 2004 revealed 43 percent of growers inspected were not complying with the WPS. All growers found to be in violation of the WPS requirements were issued a Notice of Warning and are being reinspected to ensure that violations are corrected. Failure to correct the problems can result in penalties. Securing higher compliance rates with these important regulations will continue to be a Region 8 priority.

Partnering to end childhood lead poisoning

Region 8 is collaborating with states to eliminate childhood lead poisoning. Lead poisoning can come from many sources — everything from household paint and dust and corroded water pipes in older homes to localized industrial sources. Lead is a dangerous neurotoxin and can lead to serious developmental and other health problems, especially in children.

In Colorado, more than two percent of children tested have blood-lead levels exceeding the level of concern of 10 micrograms per deciliter. EPA is participating in the Colorado Lead Coalition, which is comprised of agencies with various skills and authorities related to housing, medical treatment, regulatory enforcement, industrial pollution sources and public education. The Coalition is developing an ambitious plan to end childhood lead poisoning by eliminating sources of lead exposure and increasing medical screenings and follow up treatment. Healthcare providers, county health departments, home inspectors, educators, child care providers, remodeling contractors and community groups are working on the plan, which will be submitted to the Centers for Disease Control in the fall of 2005.

Another Region 8 partnership is focusing on lead poisoning prevention in North Dakota with the State Health Department and various tribes. Here, EPA is mapping high-risk areas and providing information on lead disclosure regulations and educational material to raise awareness of lead risks. The age of housing is the biggest risk factor in lead poisoning. More than 70 percent of housing in North Dakota was built prior to 1978, the year that regulations eliminated the use of lead-based paint, a major source of childhood lead poisoning. Studies in the state have determined that the prevalence of high blood lead levels (exceeding 10 micrograms per deciliter) is 8.6 percent for homes built pre-1940, 4.6 percent for homes built from 1940-1969 and 1.6 percent for homes built since 1970.

EPA staff at "Migrant Appreciation Day" in Greeley, Colorado. EPA shared information on pesticides and drinking water with more than 300 migrant workers and family members at this event.

Protecting ecosystems

Region 8 is an ecologically rich canvas that supports a variety of natural systems. Many EPA programs focus on protecting and restoring ecosystems, including direct support for community-based watershed projects. The oversight activities, grants and technical expertise that we provide go a long way towards protecting the abundant natural heritage in our states, tribes and federal lands.

Making better decisions about federal projects

The National Environmental Policy Act requires federal agencies to document and consider the environmental impacts of government projects and to seek public input before they are carried out. Under NEPA and associated legislation, EPA reviews formal environmental assessments (EAs) and environmental impact statements (EISs) to make sure that projects protect air, water, human health and ecosystems from adverse impacts. These documents assess the potential impacts of projects and, when appropriate, identify alternatives or mitigation measures that minimize those impacts. In 2004, Region 8 issued more than one hundred formal letters on draft or final EAs or EISs, including projects that covered tribal and federal lands, energy development, water development and transportation.

In Region 8, which is comprised of one-third federal land, the NEPA mandate covers many activities — from water projects to oil and gas leases and forest management. Region 8 is also home to some rapidly growing areas where infrastructure improvements such as highways, airports, water supply and treatment systems

RESULTS IN FOCUS

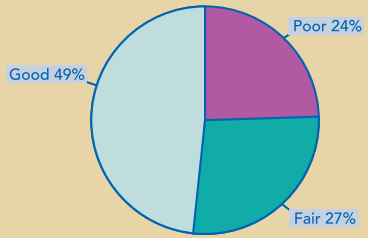
Measuring the Health of Aquatic Ecosystems in Montana

Sound science provides the foundation of EPA's work. In Region 8, the Environmental Monitoring and Assessment Program, a joint effort between EPA, Region 8 states and the U.S. Geological Survey, is taking a close look at the condition of streams. While EMAP will be completed in 2006, the first few sampling seasons are already providing results.

Collecting fish samples in an EMAP study area. This program is developing important information about the health of waters across Region 8 and how EPA can best protect and restore ecosystems.

EMAP is providing valuable information on our streams and the aquatic ecosystems of plants, fish and insects that rely on them. The more we know about these ecosystems, and the factors that stress and weaken them, the more we can target our activities and measure our progress towards protecting and restoring them.

EMAP's Northern Plains Stream Assessment is doing ground-breaking work to develop biological indicators for prairie streams. Here, a sample of 67 stream sites in Eastern Montana is being used to estimate the health of all streams in the area. The streams are being sampled for fish, insects, algae, chemistry and physical habitat characteristics. Fish and insect indexes have been developed that help categorize stream condition in terms of "good," "fair" and "poor." Sampled stream sites are then compared to these indexes to generate an overall score. Since a large number of the sampled sites are probability-based and use biological indicators, it is possible to assess the condition of the entire population of streams in the area.



Fish index scores show that 49 percent of stream lengths in the Eastern Montana study area are in good condition and 24 percent are in poor condition.

are being developed to support more people. Many of these projects fall under the purview of NEPA.

When appropriate, the NEPA process helps identify "preferred alternatives" to proposed projects that protect the environment. In Montana, for example, EPA's review of EISs has improved timber sales and logging practices, road construction, noxious weed management and other activities in national forests. Because of NEPA, some logging on sensitive land types has been dropped, less damaging logging methods are being employed and some roads are being removed to protect sensitive watersheds.

In the Kootenai National Forest, NEPA has led to the increased use of helicopter logging to reduce damage to soils and water quality, improved the protection of stream and river habitat, improved road restoration projects and led to better disclosure of air-quality impacts from prescribed burning.

In the Bitterroot National Forest, the Forest Service developed a preferred alternative to noxious weed control based on EPA's recommendations to reduce the risk of herbicide drift and transport to surface waters. This includes increased streamside buffers, hand-pulling weeds near streams, flagging aquatic areas on the ground, spray nozzles that produce larger droplets to reduce drift, use of photodegradable dyes in herbicides to improve their visual detection, use of drift cards, wind monitoring, herbicide monitoring and other measures.

Photo: USFS

Helicopter logging in Montana reduces erosion and water pollution in a sensitive area. EPA's work with the Forest Service is leading to management practices that protect environmental resources.

Helping a forest and a river recover from fire

EPA is also involved in the Upper South Platte watershed, just southwest of Denver. This special watershed contains more than 1.2 million acres of public lands, is one of the most biologically diverse areas in Colorado and is home to a world-class trout fishery. The river also has a far more basic significance — it supplies 75 percent of Colorado's 4.5 million residents with drinking water.

The Upper South Platte is also threatened. A number of factors, including population growth and development, pose increasing threats to water quality. But by far the most critical

challenge today is fire recovery. The watershed has been hit by extensive wildfires over past summers, including the devastating 2002 Hayman fire (at 137,000 acres, the largest fire in Colorado history), which resulted in massive erosion and large amounts of sediment and pollutants such as nitrates, phosphorous, and metals washing into streams throughout the area.

In September of 2003, EPA awarded the Coalition for the Upper South Platte, a Targeted Watershed Grant. This grant provides $600,000 to enhance fire recovery and restoration efforts, protect streams and wetlands, and promote organization building and volunteer-based restoration and cleanup efforts.

With EPA's help, CUSP is making great progress helping the watershed recover from fire devastation. In the steep reaches of the watershed, the loss of trees (21 percent of the ponderosa pine forest was burned) and undergrowth has left hillsides barren and erosion problems are severe. Since the Hayman fire, CUSP has coordinated the work of nearly 10,000 volunteers who have spent 45,000 hours working to build straw-bale check dams, install contour-felled log structures, construct sand-bag walls, and rake, seed and mulch sensitive areas.

Another CUSP project, "Trees for Trout," is using burned trees from the Hayman fire for stream restoration efforts. In 2004, 158 trees, including their root wads, were harvested from a burn area and taken to various locations for placement in-stream as log vanes that trap sediment. This project is improving in-stream habitat for trout and their food sources.

As CUSP continues with projects to help the watershed recover, Executive Director Carol Ekarius, explains that EPA's support has been vital. "We have managed to address some severe erosion problems in critical areas over the past two years," she says. "We would not be in the position we are in today were it not for EPA."

Photo: CUSP

Volunteers reseeding in the Hayman burn area. More than 400 acres have been reseeded to help the forest regenerate and control erosion.

PEOPLE IN ACTION

Protecting the Environment on the Southern Ute Indian Reservation

The Southern Ute Indian Reservation encompasses 1,100 square-miles of mountain and plateau country in Southwest Colorado. Here, the Southern Ute's Environmental Programs Division is dedicated to the health and welfare of more than 1,000 tribe members and their natural resources.

The Southern Ute Environmental Programs Division

The Environmental Programs Division manages duties that include monitoring air for nitrogen oxides, carbon monoxide, ozone and particulates and developing an air permitting program for stationary sources. The EP Division also monitors water quality at 24 sites on seven major rivers and 10 tributaries throughout the reservation and is engaged in several water-quality studies, including one to assess the impacts of the 2003 Missionary Ridge fire. In 2004, the division's nonpoint source program was given an EPA award for work to reduce agriculture impacts on water quality in the Los Pinos River. Other major achievements include a comprehensive recycling program and outreach programs on issues such as pesticides, children's health and West Nile virus.

The Southern Ute Reservation is currently an energy production hotspot, particularly for natural gas and coalbed methane. The tribe owns and manages Red Willow Production Co., a profitable energy business that has become a cornerstone of the reservation's economy.

With help from the EP Division, the Southern Ute Tribe has become a model for doing energy development the right way. EP staff work closely with Red Willow to make sure that production practices protect human health and the environment. The program also coordinates with EPA on Underground Injection Control permits, Air permits, and spill reporting to make sure that well sites, compressor stations and transmission lines are operating in ways that maintain environmental quality.

"While energy resources have contributed to a good quality of life here, one of our biggest goals is to ensure that development recognizes and protects our air, land and water resources," says Virgil Frazier, the division's director.